

LASCA Leaves



Los Angeles County Department of Arboreta and Botanic Gardens

MASS REPRODUCTION OF CYCADS NEW RESEARCH PROGRAM GOAL

WITH THE HELP of a \$25,000 Institute of Museum Services grant, the Los Angeles State and County Arboretum is coming to the

rescue of the cycads, primitive seed-bearing plants whose 150-million-year history has earned them the nickname "living fossils."

Pressures of civilization, mainly the loss of habitat, have forced the cycads onto the endangered species

list. The need for research to save the plants is the basis for the grant project now underway at the Arboretum.

Cycads are not suitable for all botanic gardens. In fact there are only a few other outdoor collections in the United States. The plants do well at these gardens and, if more specimens were available, could probably thrive in other gardens with climates similar to the plants' native environment.

The ideal location of the Arboretum lent itself to the formation of the Prehistoric and Jungle Garden in 1976. The garden's scattered cycad specimens were consolidated into this area along with metasequoias and ginkgos to show visitors an example of a plant community that could have existed before the Ice Age.

Loran Whitelock, an internationally recognized cycad authority, donated the initial specimens that make up the collection in the Prehistoric and Jungle Garden. Cycads later donated by the National Botanic Gardens of South Africa at Kirstenbosch were augmented in 1979 with the gift of a notable cycad collection from the University of Chicago.

The goal of the cycad research project, under the direction of Mr. Whitelock, is to obtain more plants for botanical gardens and home



LuAnn B. Munns

*Loran Whitelock, director of the Arboretum's cycad research project, monitors the condition of the tall *Dioon spinulosum* (background) and shorter *Ceratozamia mexicana*. These plants were acquired from the Chamberlain Collection at the University of Chicago.*



The female cone on this rare *Encephalartos arenarius* from the Kaba Valley area clearly shows the sterile scales at the top which separate to admit pollen.

landscapes, primarily by producing greater quantities of viable seed. One of the first steps Mr. Whitelock has undertaken is a computer search of articles on pollination and the storage of pollen so he can avoid duplicating earlier research.

Experiments have been set up to study the pollination process of the cycads. According to Mr. Whitelock, one of the biggest problems in producing more plants is the lack of knowledge on how viable seed is formed. Cycad reproduction is often a hit-or-miss procedure. The plants are dioecious, meaning that the male and female cones are produced on different plants that can be widely separated by both location and maturity of the cones.

Fertile seeds are formed when a male cone releases pollen to the wind which with luck will carry to a female plant whose cone is in a receptive stage. The problem is that male and female plants rarely cone at the same time, and there is no proven way to determine if the pollen released is capable of fertili-

zation. Nor is it easy to tell if a female cone is in a receptive stage.

Discovering what makes a female cone receptive and examining alternate methods of pollination are among the goals of the project. Mr. Whitelock is considering experiments in which he would remove the top portion of the female cone to make the fertile scales more accessible for hand pollination or use a syringe to inject the pollen into the cone.

A basic problem in cycad reproduction is determining the sex of each plant prior to maturity when the difference between the male and female cones becomes obvious. Unfortunately some species take 10 to 20 years to produce a cone. Recent studies show that it may be possible to biochemically determine the sex at an earlier stage. According to Mr. Whitelock, this would make it possible to produce the plants in the numbers necessary to fulfill the project's goals.

One of the experiments recently set up at the Arboretum explores the possibility of increasing plant numbers through leaf propagation. With the aid of professional student workers Mr. Whitelock is trying to promote root growth from leaf cuttings using fertilizers and growth regulation chemicals.

One species that would benefit from vegetative propagation is *Encephalartos woodii*. In 1895 the only known clump of this plant — a male — was found in the wild. As far as scientists can tell, there are no female plants still in existence. The Arboretum counts a specimen of *E. woodii* among its cycad collection that includes nine of the 10 known genera.

The IMS Conservation Grant was awarded for a one year period, long enough to begin the complex cycad propagation study. The IMS is an independent agency within the Department of Education that supports a variety of museums including art,

history and natural history museums as well as aquariums, botanic gardens, planetariums, science technology centers and zoos.

ACCENT ON GLAMOUR FOR PASADENA BIRTHDAY PARTY

THE CALIFORNIA Arboretum Foundation hosted a festive birthday party for Pasadena residents at the Los Angeles State and County Arboretum March 18 to celebrate the Crown City's centennial. During "Pasadena Day at the Arboretum" everyone from that city who had obtained a free ticket was treated to a tour, reception and the opportunity to win a plant at a raffle held every 15 minutes.

At Director Francis Ching's suggestion the party theme highlighted the Arboretum's glamorous reputation as the site for hundreds of exotic movie locations over the years. Everyone received a copy of a booklet detailing all the film and television stars who have worked here since 1936. Twenty docents organized by Mrs. Betty Stowell laced their botanical tours with Hollywood-style anecdotes as they led Pasadenaans from Ayres Hall of Environmental Education to the Historical Section.

At the reception in Ayres Hall, guests feasted on 400 dozen (that's almost 5,000) homemade cookies that party organizer Alice Frost Thomas cajoled Foundation members into baking for the party. Linn (Mrs. Joseph) Cannon was refreshment chairman and Grace (Mrs. Harry) Robinson created the floral decorations.

By the time the crowds cleared about 3 p.m. Foundation members were able to look back over the party with satisfaction. Not only did a lot of Pasadena residents enjoy the day, but they left behind their names as potential new members to strengthen the Foundation.

ARBORETUM HOSTS MEN'S GARDEN CLUB OF LOS ANGELES

ABOUT 65 MEMBERS of the Men's Garden Club of Los Angeles were the guests of the Los Angeles State and County Arboretum at a luncheon meeting on Feb. 13. For the occasion, superintendent John Provine turned Ayres Hall of Environmental Education into a bower of spring blossoms. Baskets of pastel freesias and hyacinths scented the air and glossy mounds of scarlet tulips flanked the hall.

The club, mostly professional men who share a common interest in gardening, was organized at about the same time the Arboretum was established. Over the years it has included on the roster some of the Arboretum's earliest and most loyal supporters; Dr. Samuel Ayres Jr., for whom Ayres Hall is named, is a longtime member. Special guest was Kirk Evans, president of the California Arboretum Foundation.

The topic of the morning program was orchids, with blooming speci-

mens used as centerpieces on the luncheon tables. After Glenn Hiatt expounded on the significance of the

Arboretum's collection, selected orchids were also offered for sale to the members.



Richard M. Baker (left), president of the Men's Garden Club of Los Angeles, leads a tour through the Tropical Greenhouse.



Members of the Men's Garden Club of Los Angeles examine orchids being offered for sale after hearing the

program on the plants during their annual meeting at the Arboretum. (Photographs by James Johnson)

ORCHID INVENTORY UPDATED TO AID STUDY AND RECORDS

AN INVENTORY of the orchid collection at the Los Angeles State and County Arboretum was completed recently in what orchidist Earl Ross called a "minimum" amount of time. In about seven months David Fernquist, holder of a bachelors degree in biology from UC Irvine, accounted for all the orchids in not only the four major greenhouses but the growing greenhouses and cymbidium shade structure as well. During the last complete inventory almost a decade ago, Mr. Ross plugged away part-time for almost three years, fitting the record taking in among his other duties.

As he worked his way along the benches, Mr. Fernquist labeled plants and recorded data on each specimen including such vital information as who collected it, when, and from exactly what location. The geographical facts are among the most important, Mr. Ross said, because orchids vary considerably, depending on the habitat to which they have become adapted.

These meticulous records on the individual habitat of each orchid makes the specimen useful as a "plant of science." Such a plant is defined by Dr. Jack Fowlie, noted orchid authority and participant in the Arboretum's collection program, as "a plant with documentation that tells how it grows, where it grows, on what kind of rocks . . . and the interrelationship of this one plant with other plants." Most orchids are highly endemic and evolve in response to local conditions; development of defined characteristics in orchids — the second largest plant family — provides a valuable indicator of climate changes, continental shifts and other happenings in times past.

The updated inventory will also yield a number of practical applica-

tions. After it is processed, the data should validate the Arboretum's claim to the world's largest collection of species orchids growing under artificial conditions. The records will also make it possible to locate plants for study by visiting orchid specialists. Requests for plant material can be processed more easily, too.

By referring to the records, the Arboretum staff will also be able to compile the required reports for the US Department of Agriculture — Animal and Plant Health Inspection Service on plants quarantined here after confiscation by customs agents. For many years the Arboretum has

accepted orchids and other tropical plants from APHIS and must report on them annually. This policy, by the way, has added to the Arboretum collection a number of interesting orchid species and, recently, an 8-foot Tasmanian tree fern (*Dicksonia squarrosa*).

Documentation of the outstanding orchid collection will enhance the stature of the Arboretum among the world's scientific community by making the resources here more accessible to specialists. An account of the upcoming visit by C. Z. Tang, an internationally recognized orchidist, will appear in a future issue of *Garden*.



Arboretum employees hoist the mural of the Queen Anne Cottage back to its familiar place in the remodeled rotunda that has been transformed into the Arboretum's public entrance.

Students Get a Grasp on Nature

Environmental Education Fair

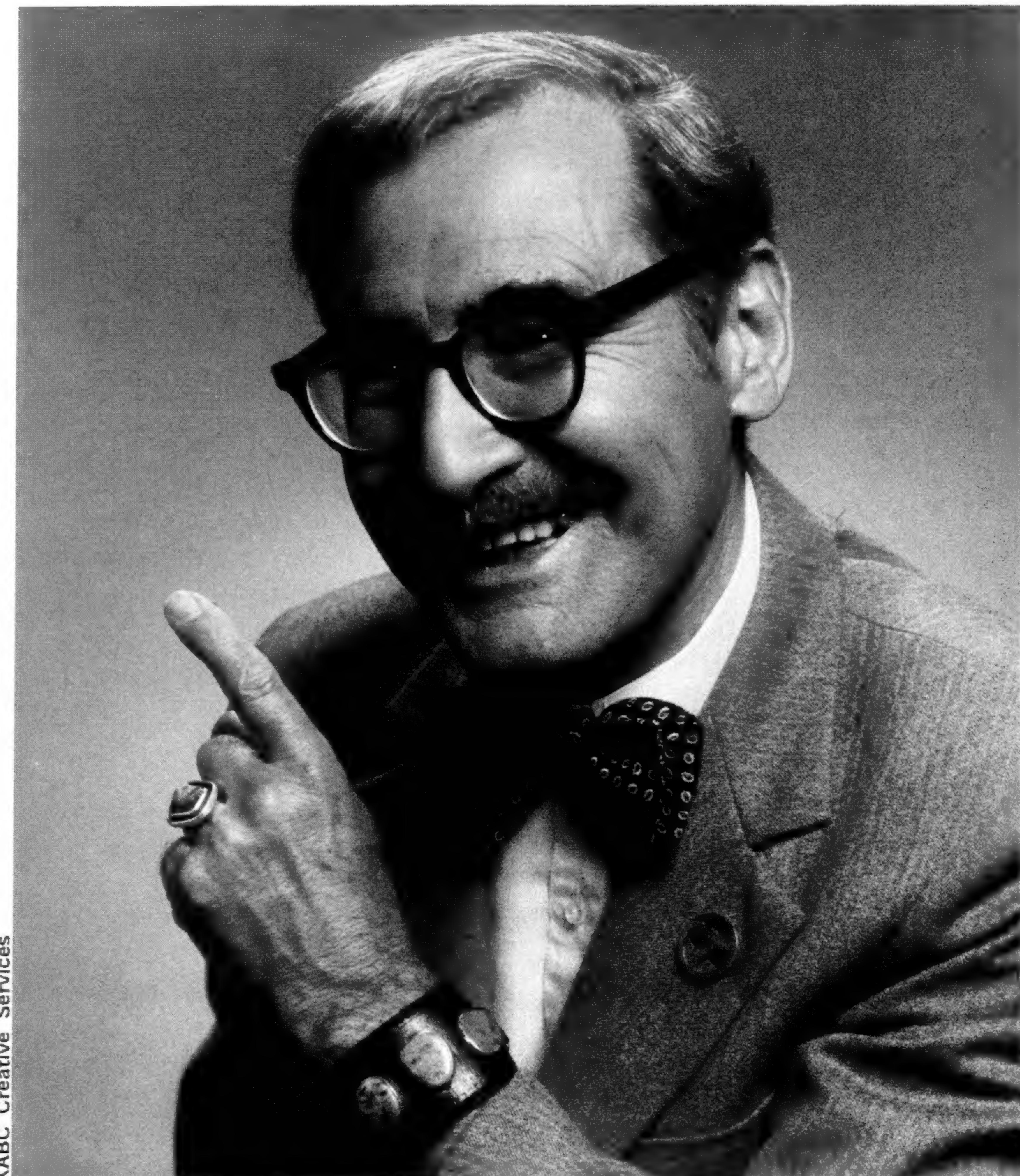


IN SIX SHORT YEARS the annual Environmental Education Fair at the Los Angeles State and County Arboretum, held this year on March 15, has become a prototype for similar expositions in Southern California. New fairs have either been held or are scheduled in Kern, San Diego and Imperial counties.

Originally modeled after the first California fair, the Bay Area Environmental Education Resource Fair in San Francisco, the EE Fair at the Arboretum has evolved to emphasize the action part of the twin goals of environmental education — inquiry and action.

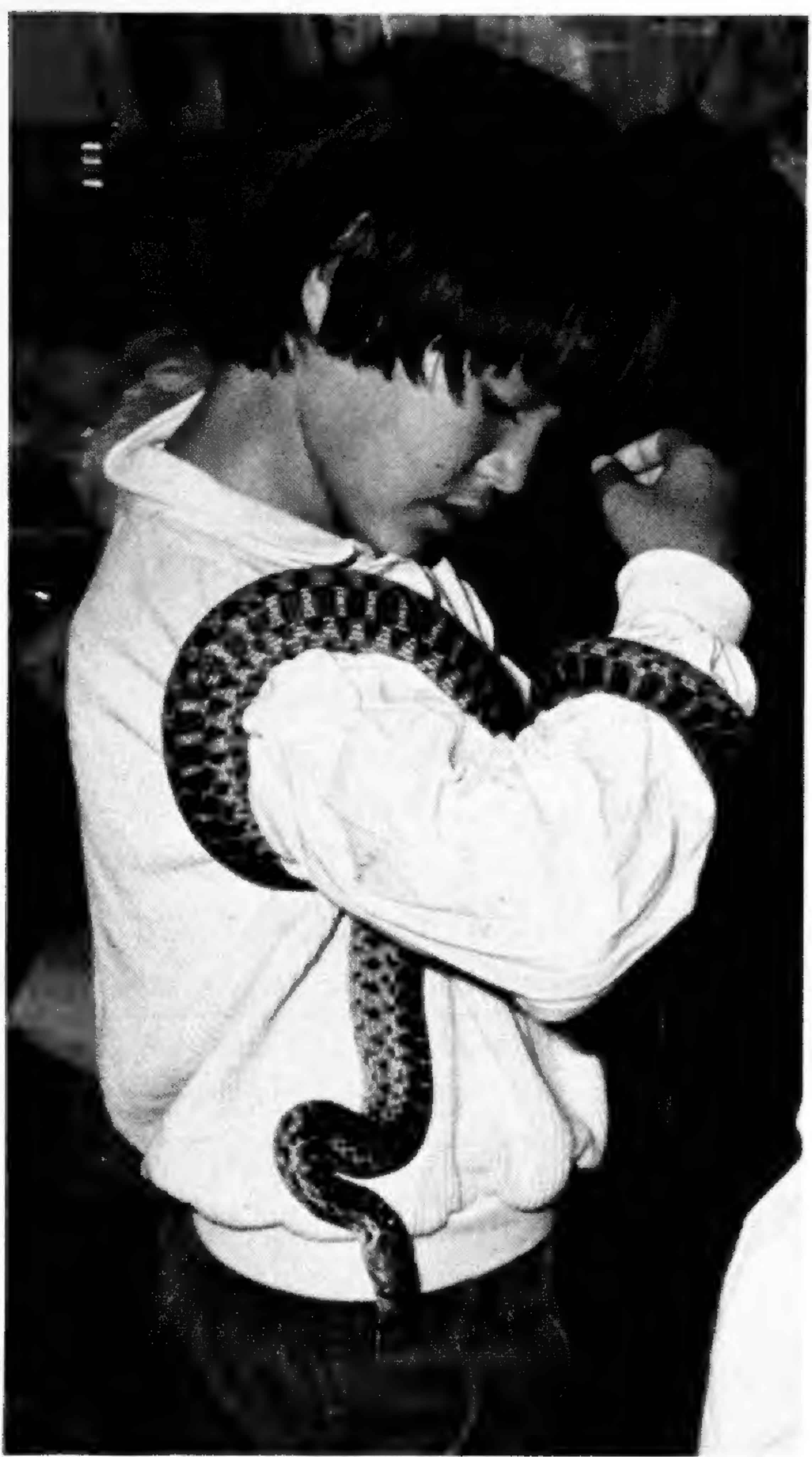
During a "Nature Bowl" quiz show and ecological treasure hunt, teams from elementary and junior and senior high schools pitted their knowledge of natural science against each other. Rewards for the winners included not only science-related prizes, but a personal handshake from Dr. George Fischbeck. The ebullient weather reporter, familiarly called "Dr. George" by fans of his evening KABC show, is a former educator who spends much of his free time promoting scientific enthusiasm among youngsters.

At the Fair students participated in a wide selection of "hands on" activities. They potted up take-



Dr. George Fischbeck, KABC's weather reporter, spent several hours at the Environmental Education Fair encouraging scientific enthusiasm among the young fans who swarmed around him.

KABC Creative Services



Despite blustery weather that threatened rain throughout the day, more than 2,000 youngsters and their teachers attended the annual Environmental Education Fair at the Los Angeles State and County Arboretum. About 60 exhibitors encouraged students to get firsthand experience with a wide range of natural science concepts. During the busy day, curious young people held a gopher snake (above) and planted take-home pine seedlings. On the facing page they compare primate bones, meet a live owl, pet a tame tarantula, experiment with solar-powered gadgets and splash among the starfish and other inhabitants of a tidal pool.

home pine trees supplied by the County Fire Dept., folded origami frogs, petted wild animals and sampled other activities at the 60 exhibits that filled Ayres Hall of Environmental Education and most of the lawn area around it.

But even as the youngsters were enjoying themselves, the educational portion of the EE Fair was not neglected. Teachers and youth group leaders also could pick up exciting lesson plans and natural science projects at a free idea exchange center staffed by the Greater Los Angeles Science Teachers Association. The LA City/County Energy Education Council also offered other free natural science

and conservation project ideas.

The EE Fair, funded by the California License Plate Grant Program, is sponsored by a number of governmental and private organizations: LA Unified School District, Los Angeles State and County Arboretum, LA Dept. of Water and Power, Metropolitan Water District, Southern California Edison, California State University - San Bernardino, State of California Dept. of Water Resources, Palms Science Center, Los Angeles County Natural History Museum, LA County Fire Dept., LA County Office of Education, National Park Service, U.S. Forest Service and California State University - Los Angeles.



Maresa Archer

Arcadia High School Photo Class



Arcadia High School Photo Class



Maresa Archer





A large koi fills the hand net as workers begin moving the decorative carp from their temporary home at the base of the waterfall to the recently finished koi pond in Meadowbrook. Large panels in the Interpretive

Center beside the new pond explain the background and cultural significance of the colorful fish that have been bred in the Orient for thousands of years.

LOS ANGELES STATE & COUNTY ARBORETUM, Arcadia

MAY 3 — 5 p.m. to 7:30 p.m.

Baldwin Bonanza Preview Party

MAY 4 — 9 a.m. to 4 p.m.

BALDWIN BONANZA

Benefit Plant Sale

California Arboretum Foundation

MAY 10, 11 — Sat. noon to 4 p.m.

Sun. 10 a.m. to 4 p.m.

Geranium Festival

International Geranium Society

Los Angeles Branch

MAY 10, 11 — 9 a.m. to 5 p.m.

Fuchsia Sale

National Fuchsia Society

MAY 18 — 11 a.m. to 4:30 p.m.

Epiphyllum Show

Epiphyllum Society of America

MAY 24, 25 — 9 a.m. to 4:30 p.m.

Bonsai Show

Santa Anita Bonsai Society

MAY 31, JUNE 1 — 9 a.m. to 5 p.m.

Azalea Show

Valley Satsuki Azalea Society

JUNE 7, 8 — Sat. 1 p.m. to 4:30 p.m.

Sun. 9 a.m. to 4:30 p.m.

Gladiolus Show

Southern California Gladiolus Society

JUNE 14 — noon to 4 p.m.

Daylily Show

Southern California Hemerocallis & Amaryllis Society

JUNE 28, 29 — Sat. 1 p.m. to 4:30 p.m.

Sun. 9 a.m. to 4:30 p.m.

Show of Miniature Roses

San Gabriel Valley Rose & Horticultural Society

CALENDAR OF EVENTS

MAY, JUNE, JULY, 1986

JULY 4, 5, 6 — 9 a.m. to 4:30 p.m.

Cactus and Succulent Show

Cactus & Succulent Society of America

JULY 19, 20 — Sat. 1 to 4:30 p.m.

Sun. 9 a.m. to 4:30 p.m.

Begonia Show

American Begonia Society

San Gabriel Branch

All events sponsored by the California Arboretum Foundation

DESCANSO GARDENS, La Canada Flintridge

MAY 10, 11 — 9 a.m. to 4:30 p.m.

Bromeliad Show

San Fernando Valley Bromeliad Society

JUNE 14, 15 — 9 a.m. to 4:30 p.m.

Fuchsia Show

National Fuchsia Society

JUNE 21-29 — 9 a.m. to 4:30 p.m.

Bonsai Show

Descanso Bonsai Society

All events sponsored by the Descanso Gardens Guild

SOUTH COAST BOTANIC GARDEN, Palos Verdes Peninsula

MAY 3, 4 — Sat. 1 - 5 p.m.

Sun. 10 a.m. to 5 p.m.

Annual Rose Show

South Coast Rose Society

MAY 17, 18 — 9 a.m. to 4 p.m.

FIESTA DE FLORES

Benefit Plant Sale

South Coast Botanic Garden Foundation

MAY 25 — 2 p.m.

"How to Sketch and Paint Flowers"

Babette Eddleston, B.F.A.

MAY 31, JUNE 1 —

Sat. 9:30 a.m. to 4:30 p.m.

Sun. 10 a.m. to 4 p.m.

Fuchsia Festival

National Fuchsia Society,

South Coast Branch

JUNE 7, 8 — Sat. noon to 5 p.m.

Sun. 9 a.m. to 5 p.m.

Cactus and Succulent Show

South Coast Cactus and

Succulent Society

JUNE 15 — 2 p.m.

"Care of Roses" lecture

South Coast Rose Society

JUNE 22 — 2 p.m.

"Hummingbirds" lecture

Robert and Esther Tyrrell

JUNE 28, 29 — Sat. 1 to 4:30 p.m.

Sun. 10 a.m. to 4:30 p.m.

Bromeliad Show

South Bay Bromeliad Associates

All events sponsored by the

South Coast Botanic Garden Foundation